while the tube is open a piece of paper may be held with safety over the chimney of the gas-light, but when the tube is closed it inflames instantaneously,—showing to what extent the heat is carried off by the tube.

We will not disguise our fear that the Doctor is not likely to reap that pecuniary return to which his ingenuity and perseverance justly entitle him. One of our correspondents, whose letter (p. 499 *ante*) was founded to some extent on a misconception of the system, considered that Dr. Chowne had simply asserted a principle, and that a patent for it could not be maintained. Let us inquire into this.

Mr. Carpmael, in his book "On the Law of Patents for Inventions," is very explicit in distinguishing between a patent for *all* applications of a principle and the application of it to any particular object. In reference to the law of gravitation, Mr. Carpmael says, p. 16, "It would have been an absurdity to suppose that a patent for all applications of the principle of this natural law could have been granted." But he further says, p. 16, "although a principle in itself cannot be the subject of a patent, the newly combining or applying a known principle to a machine or in a manufacture, whereby it becomes in any way improved, is an invention suitable to be protected by a patent."

In Messrs. Billing and Prince's "Law and Practice of Patents,"* the opinion of some of the judges on this point is quoted. Mr. Justice Buller has said, "A patent cannot be maintained for an idea or principle alone." "A principle reduced into practice means a practice founded upon principle, and that practice is a thing done or made, or the manufacture which is invented." Mr. Justice Heath has said, "There can be no new patent for a mere principle; but for a principle so far embodied, and connected with corporal substances, as to be in a condition to act, and to produce an effect in any art, trade, &c., a patent may be granted." In other words, it may be asserted that a law of nature, or property of matter, cannot be patented, but a mode of turning this to account in the operations of life can be,—and this is exactly what Dr. Chowne may claim.

There would seem, however, to be a difficulty in preventing any individual from putting up such pipes as might be necessary for himself, and it would probably even be shown that the same arrangement had been often made by others many years ago. We ourselves did so seven or eight years ago, without a precise idea perhaps of the exact mode of its operation beyond forming a vent. The circumstances were these. At a large silk merchant's establishment, at the west-end of London, three stout healthy young countrymen, who had come into the house one after the other to act as cashier, had *died*. The counting-house was a close room, without a window, and in which, consequently, gas was always burning. We were engaged about the house professionally when the last man died, and were requested to "do some little thing" towards ventilating the room. The step we took was to place all round the walls, immediately under the ceiling, a 3-inch pipe of perforated zinc (a pipe full of innumerable small holes), both ends of which were connected in one corner with a tube that went down the angle, and was taken under the floor into a flue. An amazing improvement in the atmosphere of the room was effected, and its after-occupants remained perfectly healthy, albeit it ever will be a melancholy den for a man who loves sunlight, to spend the days of his youth in. This was precisely Dr. Chowne's arrangement of pipes: others have probably done likewise, and might maintain their right to do so again.

We shall be sorry if our anticipations prove correct, because we consider that those who, at cost of time and thought, to say nothing of money, evolve a new truth, and show how it may be applied for the advantage of their fellows, are honestly entitled to reward. It seems exactly one of those cases which ought to be met from a public fund.

* Benning and Co., Fleet-street.

ON THE PRESENT STATE AND PROSPECTS OF ARCHITECTURE.*

With regard to our native styles I yield to none in sincere admiration of their beauty; they have, whether altogether from inherent power, or partly by association, the most thrilling influence on the mind, and are potent to touch the very highest notes of feeling; but it is unfair, in my opinion, to judge of the relative merits of the Gothic and Classic styles by a comparison of the former, as perfected in England, with the imperfect adaptations of the antique architecture which we see around us. Gothic architecture was cultivated and reared to its perfection in the ecclesiastical edifices, for the solemn purposes of which it was pre-eminently, if not exclusively fitted; and the complex arrangement and multifarious requirements of these buildings called out at once all its powers of expression and beauty. The antique, on the contrary, has only been carried to its acme of grandeur in the ancient temples, the most simple of all arrangements, while of its further applications, its adaptation to other and modern purposes, we have good reason to doubt the perfection. If these ancient orders, or rather the elements that compose them, have never had their full significance in modern works, and such I believe is the fact, the comparison of the two styles is unjust. For the production of picturesque magnificence of effect, the capabilities of their exquisite profiles, their lines of grace and grandeur, have, perhaps, never been completely shown, even by the Italians. There is no degree of richness, or minute delicacy of ornament, exhibited by the Gothic, or by the Mahomedan or Oriental styles, which the Classic is not capable of equalling in the hands of an architect who thoroughly understands its principles and motives. We have no building in Europe that is a fair specimen of its power. Its resources are not adequately drawn upon in the great buildings which are the chief boast of the style, particularly as regards their interiors. St. Peter's and St. Paul's and the *chef d'œuvres* of Paris fall far short of what may be imagined to arise, under concurrence of every favourable circumstance, as a Phœnix from the ashes of antiquity.

Of this high reach of art in future, I found my hope upon the new light that is everywhere breaking, as to its real end and influence. But it pre-supposes, likewise, the appearance of talented professors, with the occasional visit of genius. Of the first we have no reason to doubt; and of the latter we need not despair. The truth will set us free, and if we commence in the right spirit, our perception of the true and right will become stronger. With the legitimate exercise of our faculties we may expect new power to be born; and there will be but little danger of repetition; while sincere, independent thought will shed a ray over the meanest subject and rudest material. No man knows what his power of invention is until it is called into play; there are, I suspect, in most men, if not in every man, intellectual capacities which, for want of favourable opportunity, have never been developed. In some who have entered the profession, the needful powers may, unfortunately, be weak, or altogether lacking; but the deficiency of individuals in creative energy, cannot alter the nature of art. The man who is content to copy only, or who possesses ability for nothing higher, is a mechanic; but by no accumulation of means or examples can true architecture ever become a mechanical employment. Genuine works of architecture, like those of nature, have a purpose, as we have before seen, beyond their ministry to the senses. They do not appeal to the eye alone, any more than music does to the ear; they have an interest for the understanding, and for the moral perceptions; and this high moral object is a link that unites ours to all the other fine arts. They administer to the gratification of the inner sense, which is our loftiest enjoyment, and the most worthy of humanity. The architect of the present day has, therefore, his work in the spiritual department of the world, as well as his predecessors. He has his ideas to express as well as them; and the language is vouchsafed unto him also. What is chiefly wanting, is self-dependence,—a turning inward into his heart, and looking round him into nature, for ideas and images, instead of going backward for example and authority. Architects must learn to walk by their own strength, if they would produce works that will characterize the age, and show the "height of the human soul" in the nineteenth century. "There is at this moment," to quote an eminent living author, "there is for me an utterance bare and grand as that of the colossal chisel of Phidias, or trowel of the Egyptian, or the pen of Dante, but different from all these."

At the same time it must be admitted, that the study and practice of a legion of styles will ever produce distraction among professors; that it must result in stagnation to the art: and that it is a chief cause of the evils under which we groan; as, under such circumstances, no one style can be cultivated with the spirit and energy essential to its perfection. Architecture is said to require the devotion of a life; but if so many styles are to be used, a life-time is too short. This must be remedied. Certainly one language is sufficient for the expression of our ideas of the beautiful and the true. Inigo Jones's solecism, in attaching a Corinthian portico to old St. Paul's, and Wren's expressed contempt for the beautiful monuments of the middle ages, are not without their lesson to us when read aright; they show the devotion of these masters to the one style, the secret of their success in it. Let him who would excel in the Classic styles, like them devote himself to the remains of antiquity; study the spirit of the laws involved in them; embue his mind with their beauty; and trace their principles of design and application through the works of the great masters of Italy. Like them, let him confine his imitation to their principles, and not extend it to their designs. This is the only way in which he can hope to rival them in the production of edifices, that shall be admired as works of the age. Correctness of style is not, as has too often been supposed, the all-important point. Whatever may be said on that head, certain it is, that truth of conception, sincere operation of thought, attention to the great principles derived from nature and reason, will cover a multitude of faults, such as have been charged upon buildings by certain late critics, who undertake to pronounce upon the productions of art, whilst ignorant of its real nature and purpose.

This truth of expression, to which I have frequently adverted, is but another word for beauty. Physical beauty of form is the material expression of truth; it is truth, as far as matter can express it. Beauty in architecture, therefore, is truth; and between the former and moral beauty, there is more than analogy. Physical beauty is a reflection of moral beauty, or rather the issue and result. "But if truth be beauty," some might answer, "all buildings, while true, must be equally beautiful." Not so: "Why, then," it might be asked, "is a well designed church more pleasing than a market-place or hospital?" Because it expresses a higher purpose, a loftier truth. Why is the market-place pleasing at all? because it is true. It is part of a great whole, and exists in true relation and harmony with the universe. As no one object in nature is completely beautiful, viewed apart from the rest; as part of its beauty consists in the harmony of its relations, so must an object of art be individually and relatively true, and harmonize with the rest of nature and life, to be perfect. The architect's task is, in fact, to co-operate with nature in her inventions, and his works are

* See page 550 *ante*.

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